FIG. 1

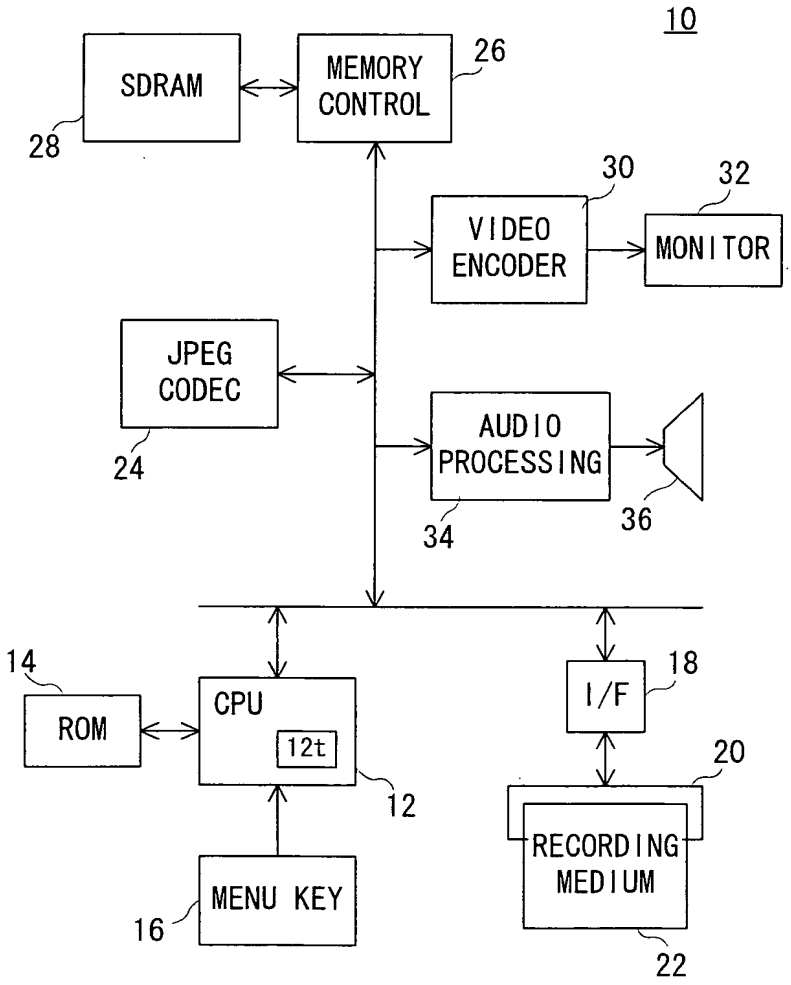

10
SDRAM
MEMORY CONTROL
26
28
30
32
VIDEO ENCODER
MONITOR
JPEG CODEC
24
AUDIO PROCESSING
34
36
14
ROM
CPU
12t
12
18
I/F
20
RECORDING MEDIUM
22
MENU KEY
16

FIG. 2

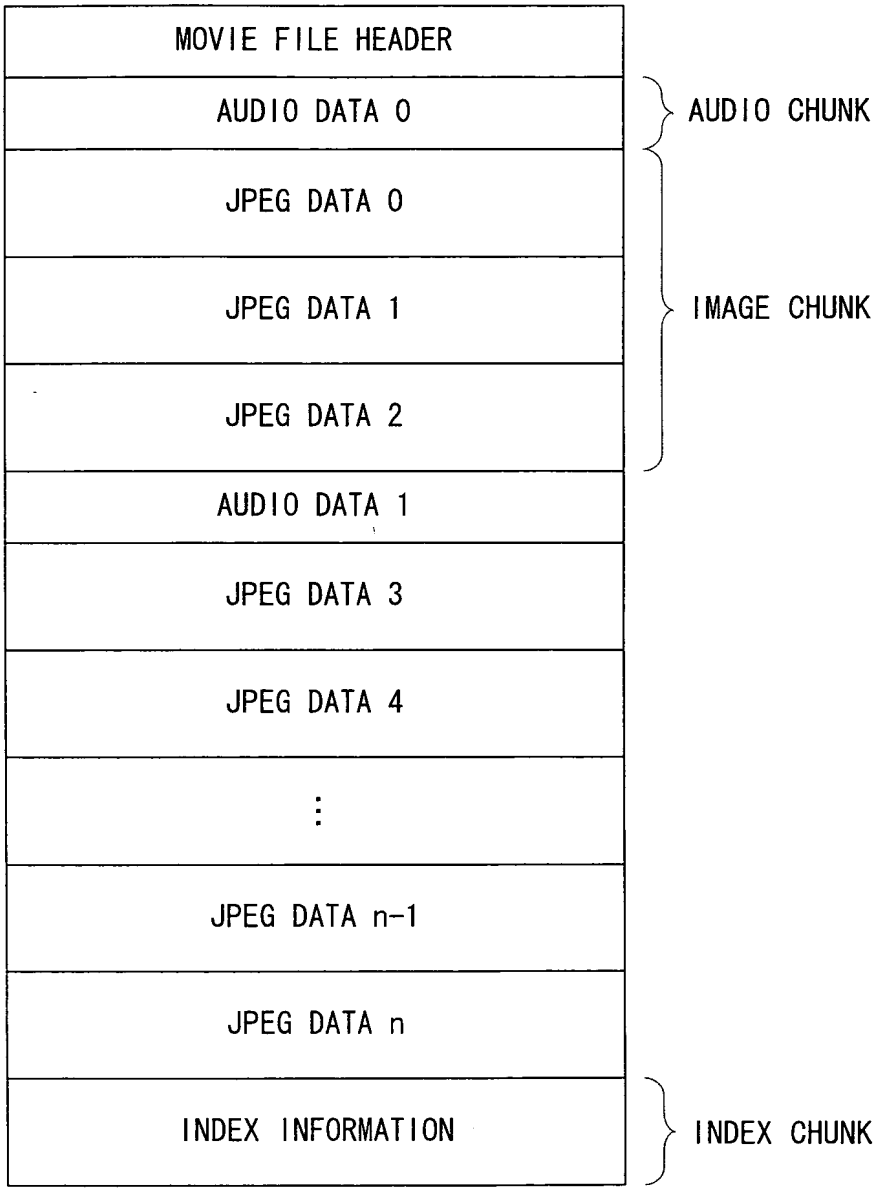

MOVIE FILE HEADER
AUDIO DATA 0
JPEG DATA 0
JPEG DATA 1
JPEG DATA 2
AUDIO DATA 1
JPEG DATA 3
JPEG DATA 4
JPEG DATA n-1
JPEG DATA n
INDEX INFORMATION
AUDIO CHUNK
IMAGE CHUNK
INDEX CHUNK

FIG. 3

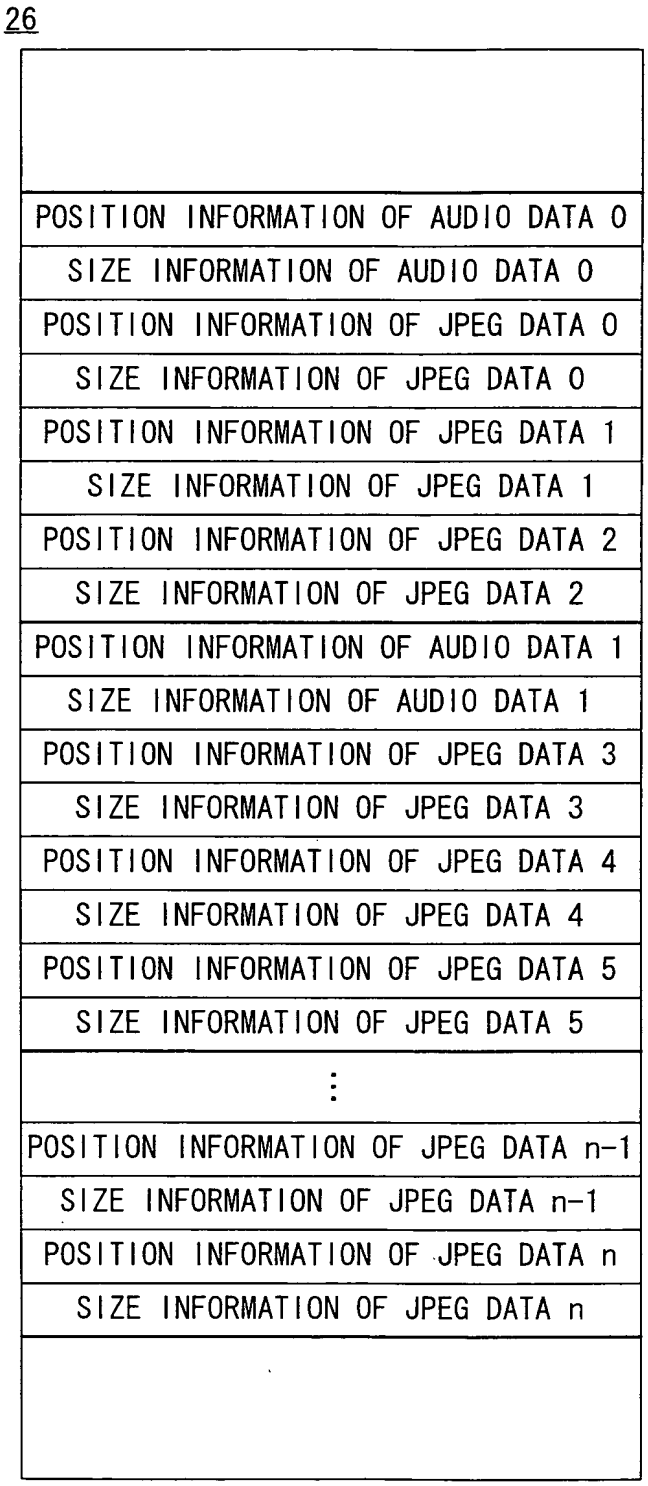

26
POSITION INFORMATION OF AUDIO DATA 0
SIZE INFORMATION OF AUDIO DATA 0
POSITION INFORMATION OF JPEG DATA 0
SIZE INFORMATION OF JPEG DATA 0
POSITION INFORMATION OF JPEG DATA 1
SIZE INFORMATION OF JPEG DATA 1
POSITION INFORMATION OF JPEG DATA 2
SIZE INFORMATION OF JPEG DATA 2
POSITION INFORMATION OF AUDIO DATA 1
SIZE INFORMATION OF AUDIO DATA 1
POSITION INFORMATION OF JPEG DATA 3
SIZE INFORMATION OF JPEG DATA 3
POSITION INFORMATION OF JPEG DATA 4
SIZE INFORMATION OF JPEG DATA 4
POSITION INFORMATION OF JPEG DATA 5
SIZE INFORMATION OF JPEG DATA 5
POSITION INFORMATION OF JPEG DATA n-1
SIZE INFORMATION OF JPEG DATA n-1
POSITION INFORMATION OF JPEG DATA n
SIZE INFORMATION OF JPEG DATA n

FIG. 4

12t

i	SDRAM ADDRESS	DATA SIZE
0		
1		
2		
3		
4		
5		
⋮	⋮	⋮

FIG. 5(A)

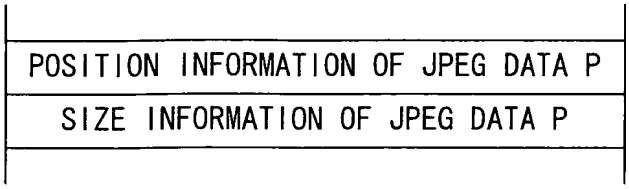


FIG. 5(B)

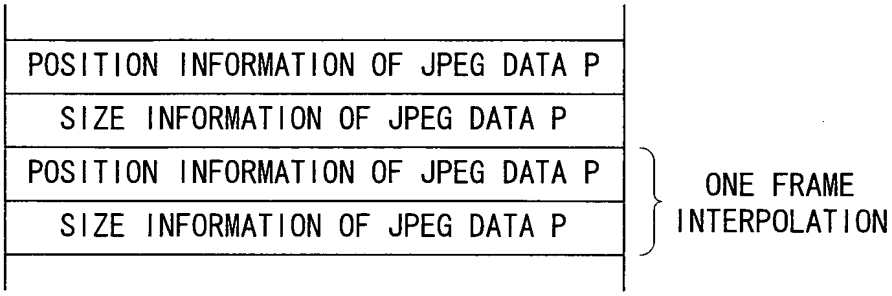


FIG. 5(C)

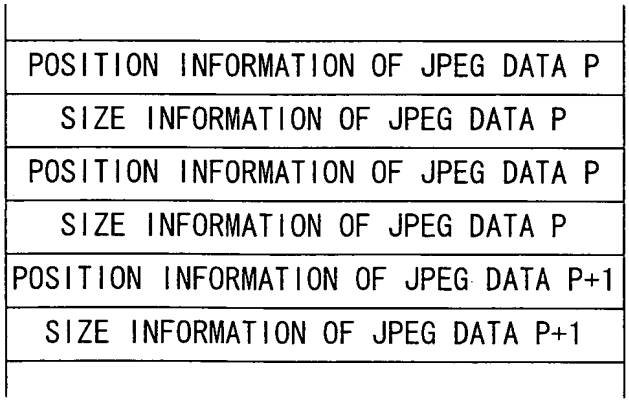


FIG. 6(A)

i	SDRAM ADDRESS	DATA SIZE
P	P-TH FRAME	P-TH FRAME
P+1		
P+2		

FIG. 6(B)

i	SDRAM ADDRESS	DATA SIZE	
P	P-TH FRAME	P-TH FRAME	
P+1	P-TH FRAME	P-TH FRAME	} ONE FRAME INTERPOLATION
P+2			

FIG. 6(C)

i	SDRAM ADDRESS	DATA SIZE
P	P-TH FRAME	P-TH FRAME
P+1	P-TH FRAME	P-TH FRAME
P+2	P+1-TH FRAME	P+1-TH FRAME

FIG. 7(A)

POSITION INFORMATION OF JPEG DATA P
SIZE INFORMATION OF JPEG DATA P
POSITION INFORMATION OF JPEG DATA P+1
SIZE INFORMATION OF JPEG DATA P+1

FIG. 7(B)

POSITION INFORMATION OF JPEG DATA P	
SIZE INFORMATION OF JPEG DATA P	
POSITION INFORMATION OF JPEG DATA P+2	ONE FRAME THINNING
SIZE INFORMATION OF JPEG DATA P+2	

FIG. 7(C)

POSITION INFORMATION OF JPEG DATA P
SIZE INFORMATION OF JPEG DATA P
POSITION INFORMATION OF JPEG DATA P+2
SIZE INFORMATION OF JPEG DATA P+2
POSITION INFORMATION OF JPEG DATA P+3
SIZE INFORMATION OF JPEG DATA P+3

FIG. 8(A)

i	SDRAM ADDRESS	DATA SIZE
P	P-TH FRAME	P-TH FRAME
P+1	P+1-TH FRAME	P+1-TH FRAME
P+2		

FIG. 8 (B)

i	SDRAM ADDRESS	DATA SIZE	
P	P-TH FRAME	P-TH FRAME	
P+1	P+2-TH FRAME	P+2-TH FRAME	} ONE FRAME THINNING
P+2			

FIG. 8(C)

i	SDRAM ADDRESS	DATA SIZE
P	P-TH FRAME	P-TH FRAME
P+1	P+2-TH FRAME	P+2-TH FRAME
P+2	P+3-TH FRAME	P+3-TH FRAME

FIG. 9

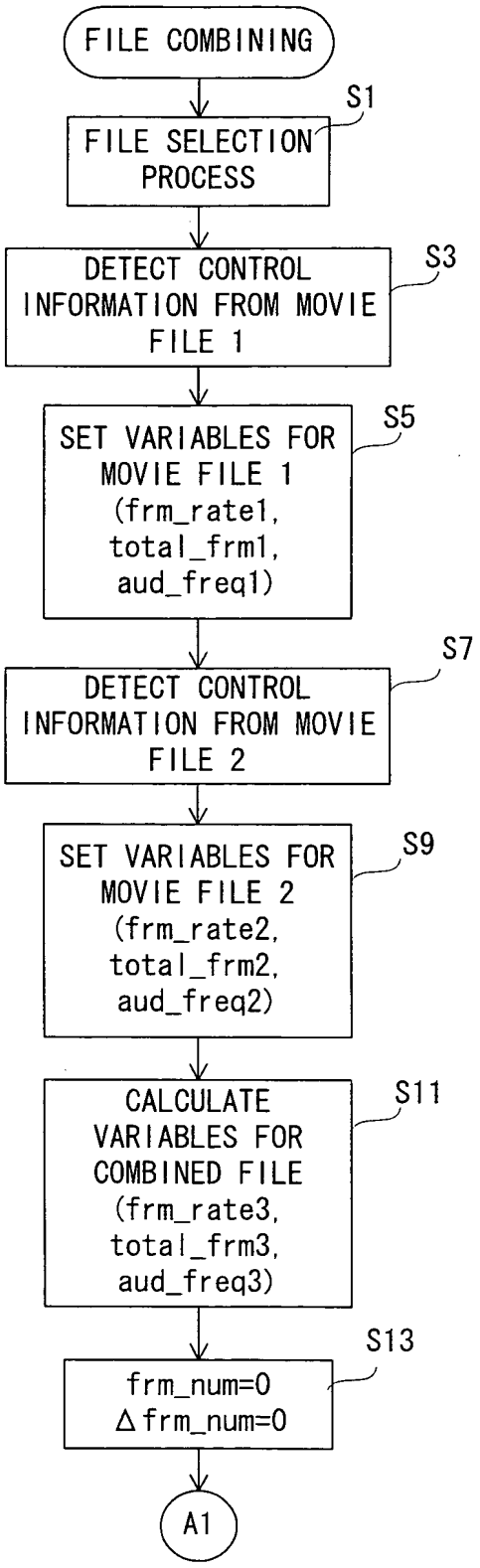

FILE COMBINING
S1
FILE SELECTION PROCESS
S3
DETECT CONTROL INFORMATION FROM MOVIE FILE 1
S5
SET VARIABLES FOR MOVIE FILE 1 (frm_rate1, total_frm1, aud_freq1)
S7
DETECT CONTROL INFORMATION FROM MOVIE FILE 2
S9
SET VARIABLES FOR MOVIE FILE 2 (frm_rate2, total_frm2, aud_freq2)
S11
CALCULATE VARIABLES FOR COMBINED FILE (frm_rate3, total_frm3, aud_freq3)
S13
frm_num=0
Δfrm_num=0
A1

FIG. 10

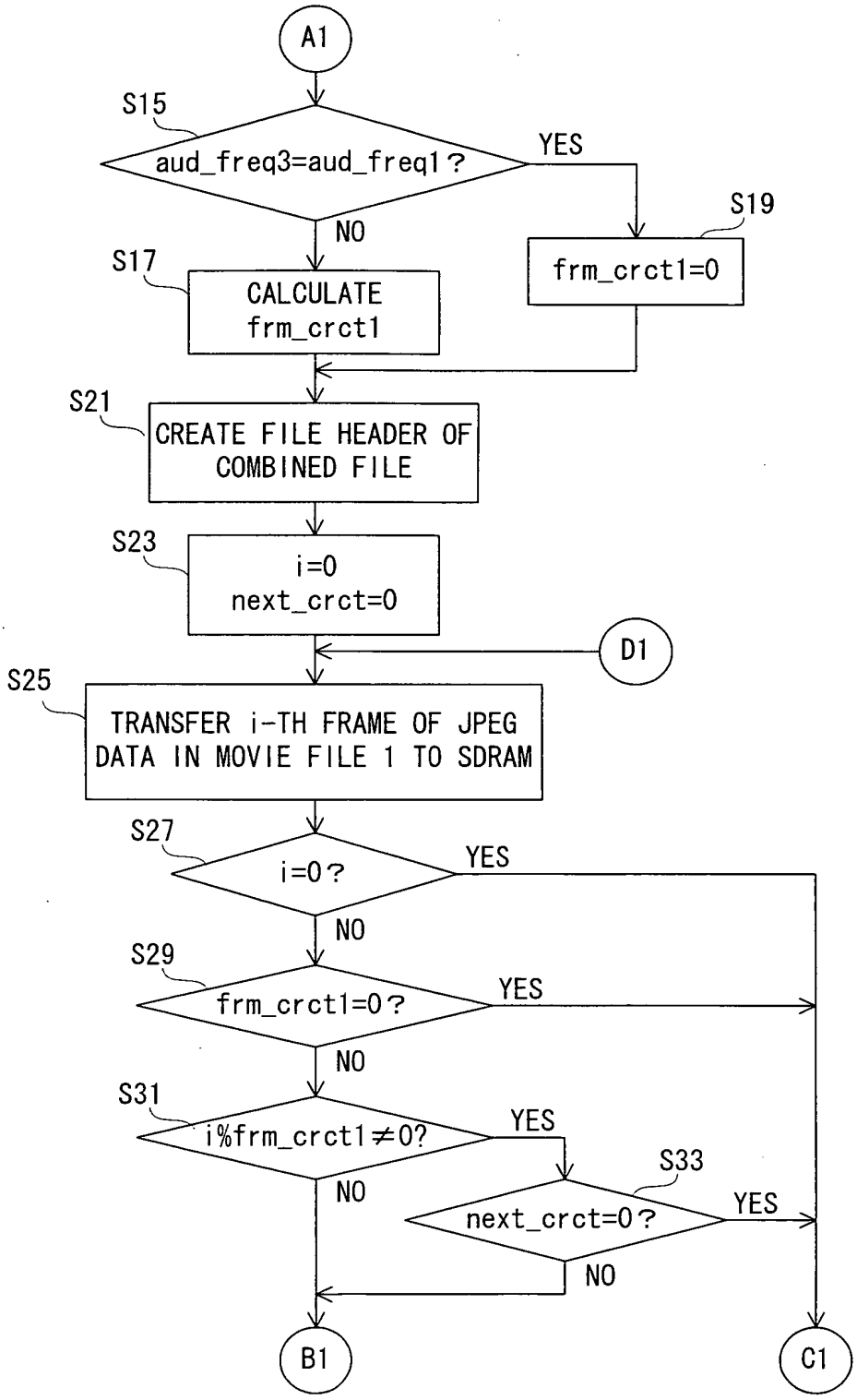

A1
S15
aud_freq3=aud_freq1?
YES
NO
S19
frm_crct1=0
S17
CALCULATE
frm_crct1
S21
CREATE FILE HEADER OF
COMBINED FILE
S23
i=0
next_crct=0
D1
S25
TRANSFER i-TH FRAME OF JPEG
DATA IN MOVIE FILE 1 TO SDRAM
S27
i=0?
YES
NO
S29
frm_crct1=0?
YES
NO
S31
i%frm_crct1≠0?
YES
NO
S33
next_crct=0?
YES
NO
B1
C1

FIG. 11

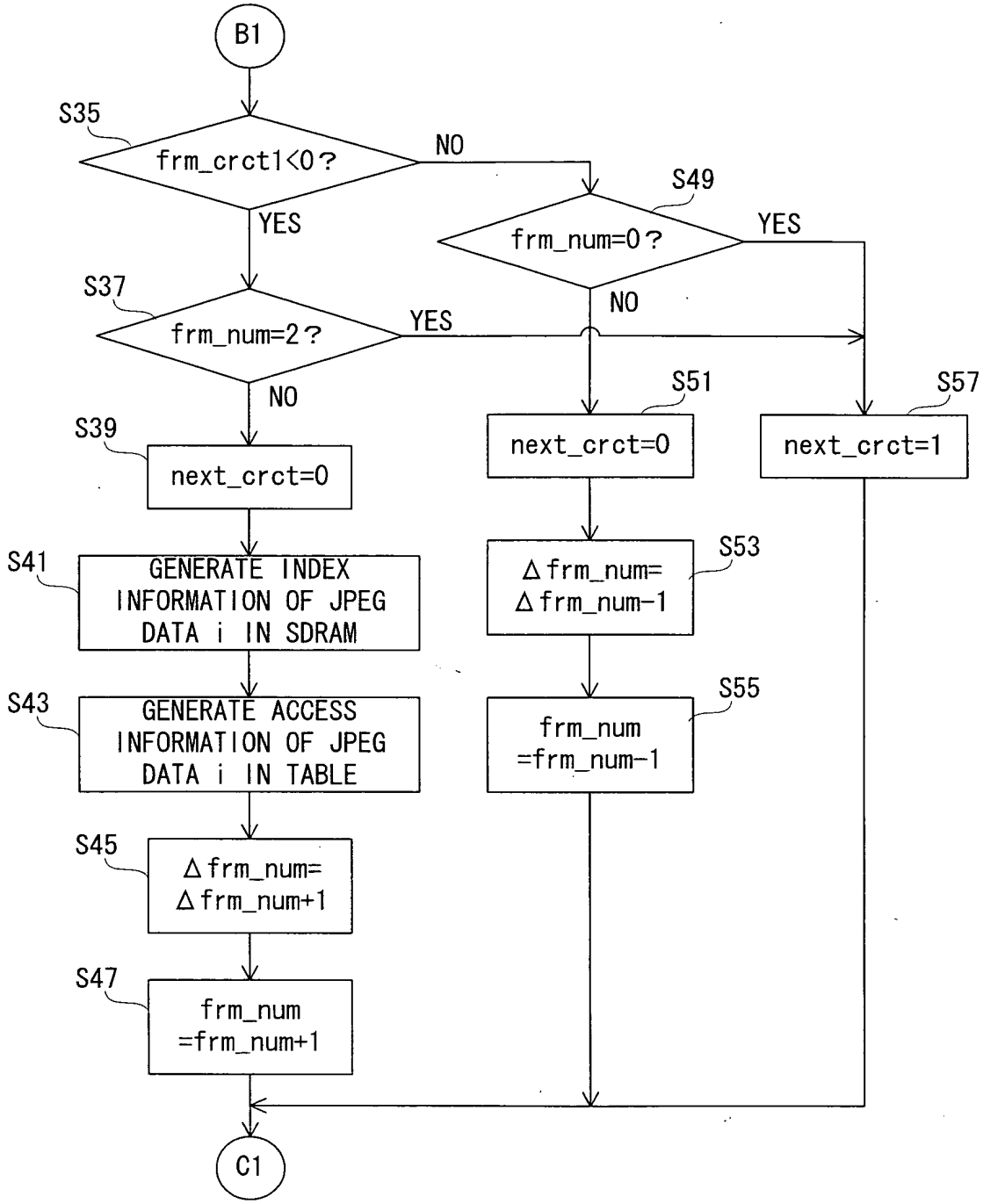

B1
S35
frm_crct1<0?
NO
YES
S49
frm_num=0?
YES
NO
S37
frm_num=2?
YES
NO
S51
S57
S39
next_crct=0
next_crct=0
next_crct=1
S41
GENERATE INDEX INFORMATION OF JPEG DATA i IN SDRAM
S53
Δfrm_num= Δfrm_num-1
S43
GENERATE ACCESS INFORMATION OF JPEG DATA i IN TABLE
S55
frm_num =frm_num-1
S45
Δfrm_num= Δfrm_num+1
S47
frm_num =frm_num+1
C1

FIG. 12

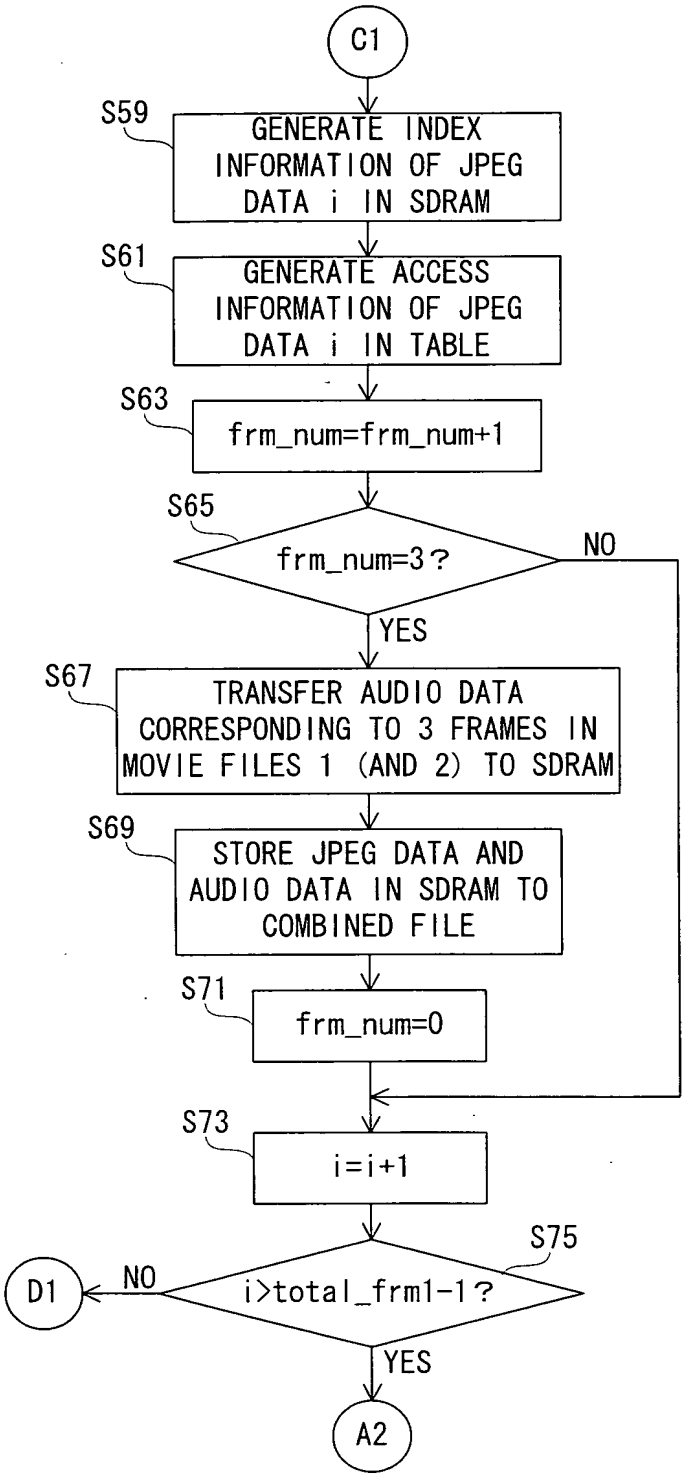

C1
S59
GENERATE INDEX INFORMATION OF JPEG DATA i IN SDRAM
S61
GENERATE ACCESS INFORMATION OF JPEG DATA i IN TABLE
S63
frm_num=frm_num+1
S65
frm_num=3?
NO
YES
S67
TRANSFER AUDIO DATA CORRESPONDING TO 3 FRAMES IN MOVIE FILES 1 (AND 2) TO SDRAM
S69
STORE JPEG DATA AND AUDIO DATA IN SDRAM TO COMBINED FILE
S71
frm_num=0
S73
i=i+1
S75
i>total_frm1-1?
NO
D1
YES
A2

FIG. 13

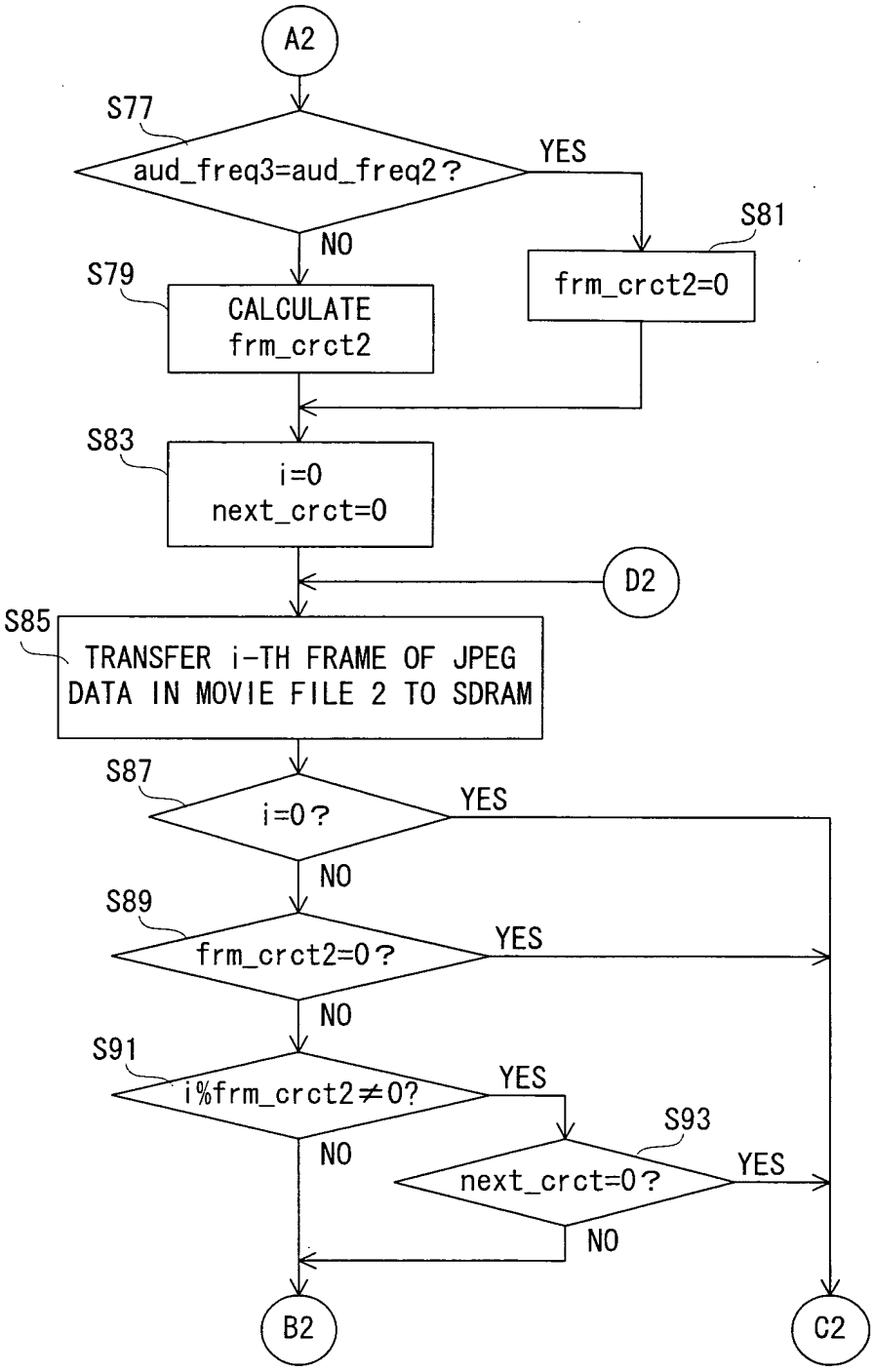

A2
S77
aud_freq3=aud_freq2?
YES
NO
S81
frm_crct2=0
S79
CALCULATE
frm_crct2
S83
i=0
next_crct=0
D2
S85
TRANSFER i-TH FRAME OF JPEG
DATA IN MOVIE FILE 2 TO SDRAM
S87
i=0?
YES
NO
S89
frm_crct2=0?
YES
NO
S91
i%frm_crct2≠0?
YES
NO
S93
next_crct=0?
YES
NO
B2
C2

FIG. 14

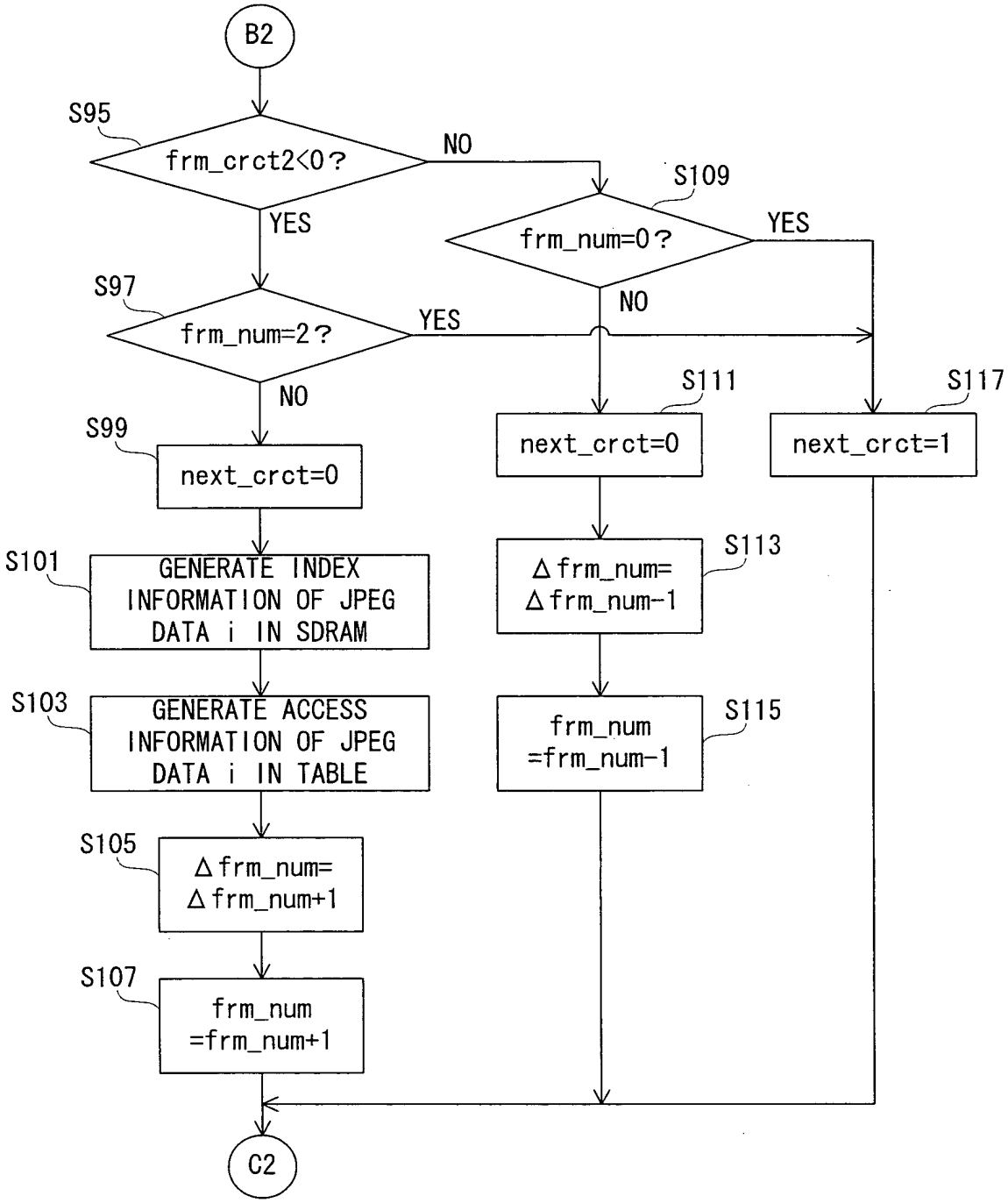

B2
S95
frm_crct2<0?
NO
YES
S109
frm_num=0?
YES
NO
S97
frm_num=2?
YES
NO
S111
S117
S99
next_crct=0
next_crct=0
next_crct=1
S101
GENERATE INDEX INFORMATION OF JPEG DATA i IN SDRAM
S113
Δfrm_num= Δfrm_num-1
S103
GENERATE ACCESS INFORMATION OF JPEG DATA i IN TABLE
S115
frm_num =frm_num-1
S105
Δfrm_num= Δfrm_num+1
S107
frm_num =frm_num+1
C2

FIG. 15

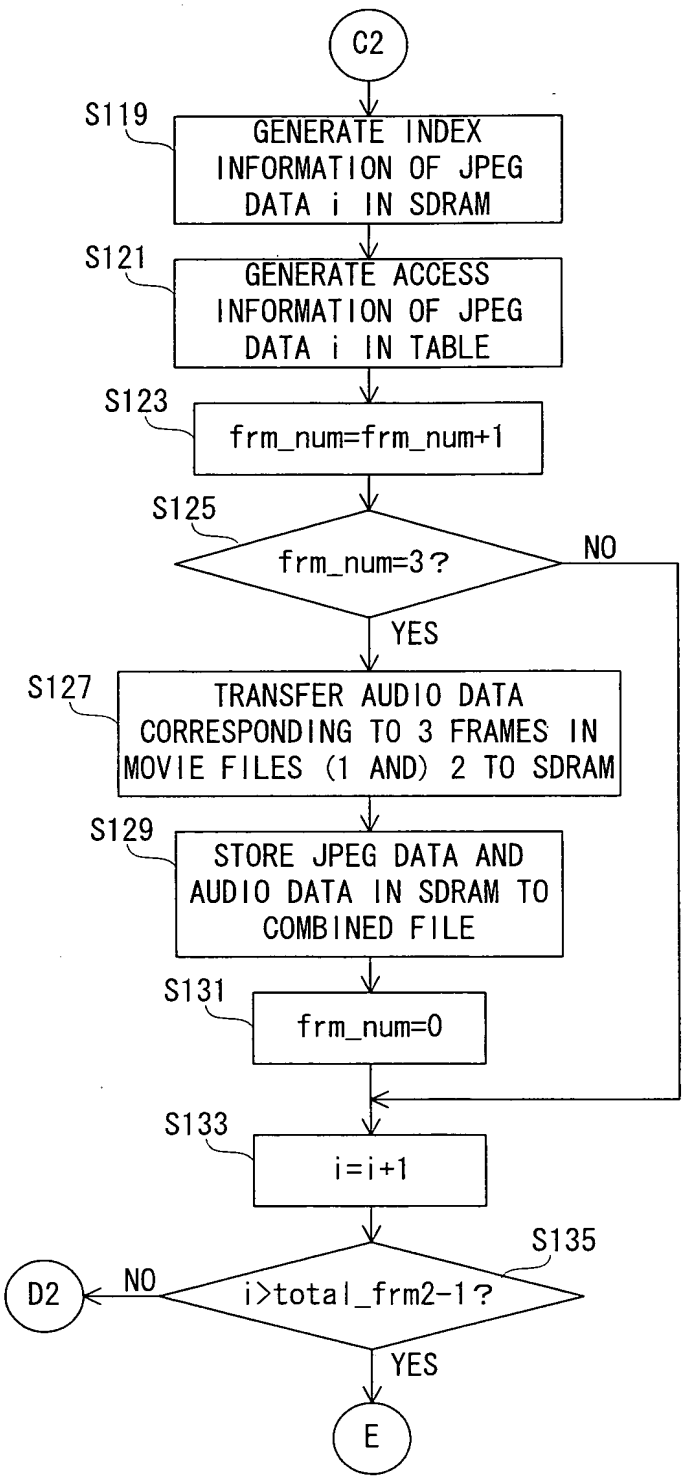

C2
S119
GENERATE INDEX INFORMATION OF JPEG DATA i IN SDRAM
S121
GENERATE ACCESS INFORMATION OF JPEG DATA i IN TABLE
S123
frm_num=frm_num+1
S125
frm_num=3?
NO
YES
S127
TRANSFER AUDIO DATA CORRESPONDING TO 3 FRAMES IN MOVIE FILES (1 AND) 2 TO SDRAM
S129
STORE JPEG DATA AND AUDIO DATA IN SDRAM TO COMBINED FILE
S131
frm_num=0
S133
i=i+1
S135
i>total_frm2-1?
NO
D2
YES
E

FIG. 16

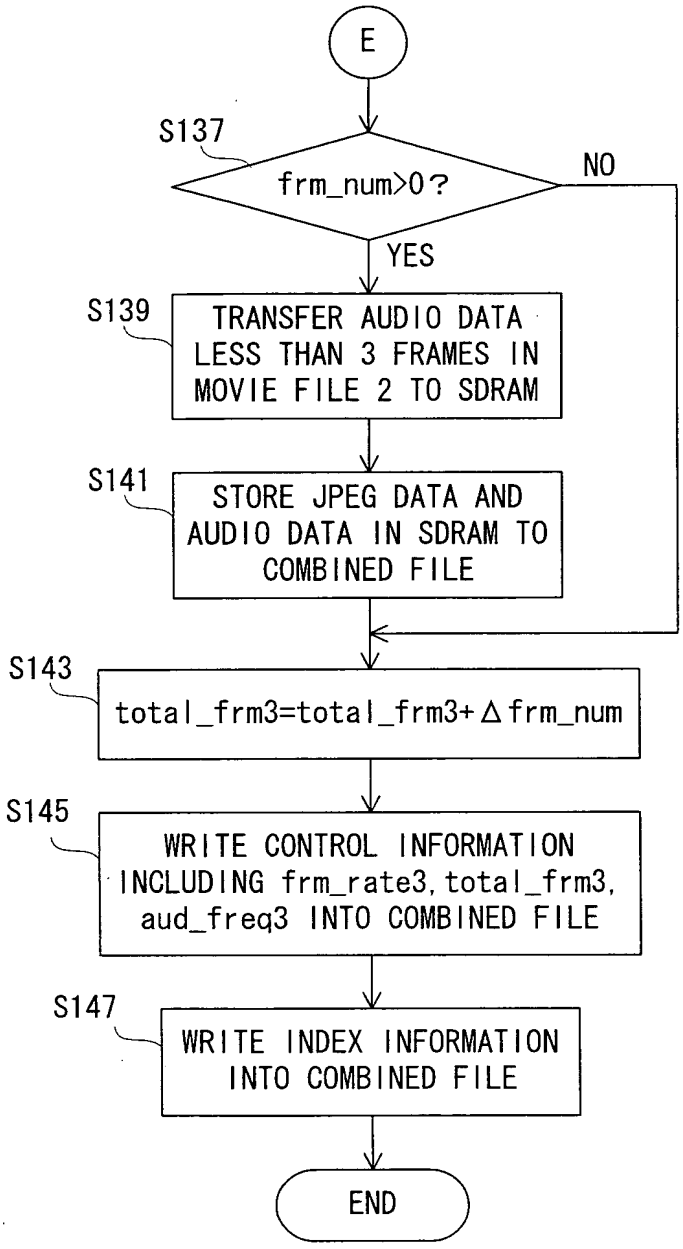
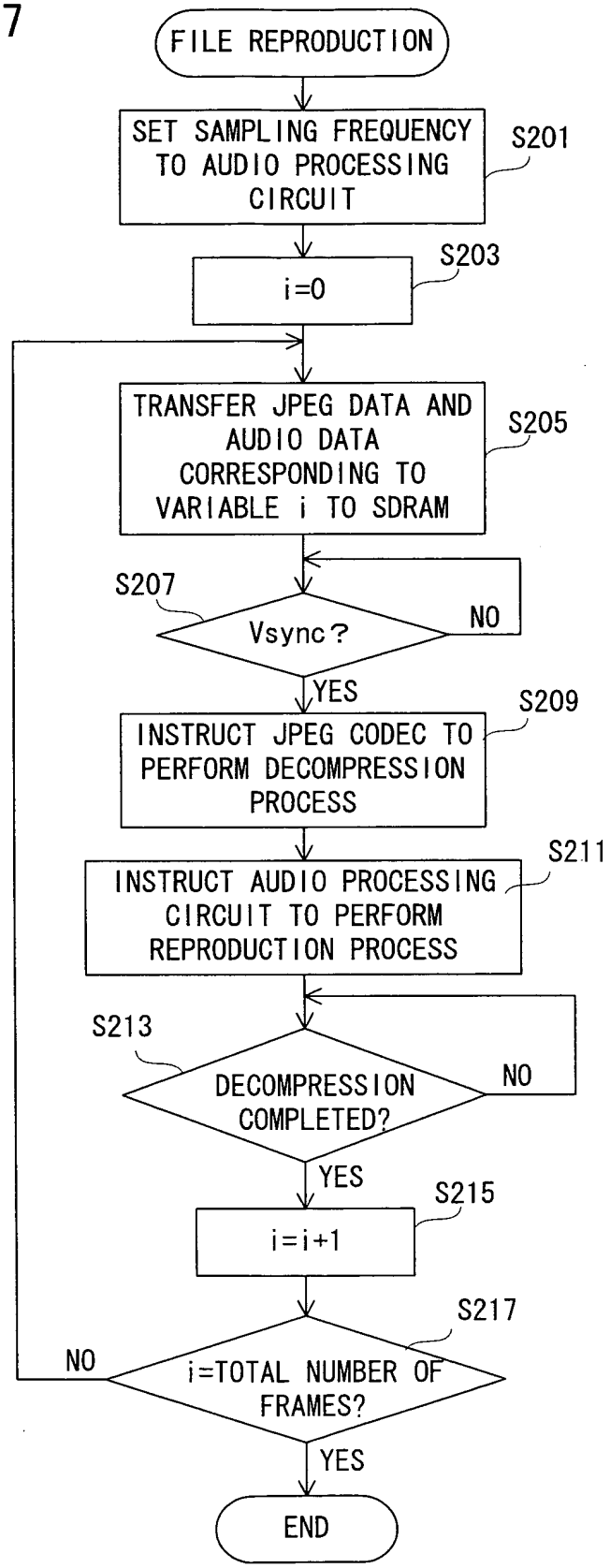

E
S137
frm_num>0?
NO
YES
S139
TRANSFER AUDIO DATA LESS THAN 3 FRAMES IN MOVIE FILE 2 TO SDRAM
S141
STORE JPEG DATA AND AUDIO DATA IN SDRAM TO COMBINED FILE
S143
total_frm3=total_frm3+Δfrm_num
S145
WRITE CONTROL INFORMATION INCLUDING frm_rate3, total_frm3, aud_freq3 INTO COMBINED FILE
S147
WRITE INDEX INFORMATION INTO COMBINED FILE
END

FIG. 17


FILE REPRODUCTION
SET SAMPLING FREQUENCY TO AUDIO PROCESSING CIRCUIT
S201
i=0
S203
TRANSFER JPEG DATA AND AUDIO DATA CORRESPONDING TO VARIABLE i TO SDRAM
S205
S207
Vsync?
NO
YES
INSTRUCT JPEG CODEC TO PERFORM DECOMPRESSION PROCESS
S209
INSTRUCT AUDIO PROCESSING CIRCUIT TO PERFORM REPRODUCTION PROCESS
S211
S213
DECOMPRESSION COMPLETED?
NO
YES
i=i+1
S215
S217
NO
i=TOTAL NUMBER OF FRAMES?
YES
END